RESOLUTIONS

OF THE

LEGISLATURE OF IOWA,

IN FAVOR

Of a grant of land to aid in the construction of the Dubuque and Keokuk railroad.

January 15, 1849.

Refered to the Committee on Public Lands, and ordered to be printed.

JOINT RESOLUTION to accept of a reconnoisance and preliminary survey.

1. *Resolved by the General Assembly of the State of Iowa*, That the subjoined reconnoisance and preliminary survey of a route for a railroad from Dubuque, in Dubuque county, to Keokuk, in Lee county, in the State of Iowa be, and the same are hereby, accepted and adopted; and that our senators be instructed, and our representatives in Congress be requested, to procure from the govenment of the United States a grant of land to aid in the construction of a railroad in accordance with the memorial of the General Assembly of the State of Iowa, approved January 25, 1848: *Provided, however*, that in the permanent location of said road, Jefferson county may, if found practicable, be substituted for Henry county.

2. *Resolved*, That the governor be requested to forward one copy of this resolution to the Senate of the United States, one copy to the Speaker of the House of Representatives, and one copy to each of our representatives and senators in Congress.

SMILEY H. BONHAM,
Speaker of the House of Representatives.
JOHN J. SELMAN,
President of the Senate.

Approved Dec. 23, 1848.

ANSEL BRIGGS.

DUBUQUE AND KEOKUK RAILROAD.

Report of the Engineer.

Iowa city, *December* 4, 1848.

The board of directors for the Dubuque and Keokuk railroad met at Iowa city, and a quorum being present, proceeded to organize by electing L. H. Langworthy, of Dubuque, president, P. R. Skinner, esq., of

Tippin & Streeper, printers.

Anamosa, Jones county, secretary, and J. H. Fisher, esq., of Iowa city, treasurer.

The following report of the surveyor and engineer appointed for that purpose was submitted and accepted :

DECEMBER 4, 1848.

SIR : Having, in compliance with my instructions, made a reconnoisance of the route from Dubuque to Keokuk, through certain intermediate points, with a view to ascertain the practicability of constructing a railroad thereon, I have the honor to offer the following report as the result of my examinations :

GENERAL DESCRIPTION OF THE ROUTE.

This railroad is designed to connect Dubuque on the north with Keokuk on the south; the former the centre of a great mineral and agricultural district, the latter situated at the foot of the " Des Moines Rapids," on the Mississippi, the head of certain navigation on that river.

In this route the road will pass through the heart of several of the most populous and fertile interior counties of the State of Iowa, now laboring under serious inconvenience, in common with the entire district west of the proposed improvement, for want of some outlet for their abundant agricultural products. The work is therefore very materially regarded as an object of interest to nearly all the eastern slope of the State, and besides accommodating the business in this district, as well as the increased *amount* and extended area of traffic, which such improvements never fail to produce, it will constitute an important link in the great chain of communication between the eastern and southwestern markets, taken in connexion with either of the railroads in comtemplation from lake Michigan to points on the Mississippi, near to and opposite Dubuque—one from Milwaukie, the other from Chicago, (the latter now in course of construction,) it will complete the chain of rapid communication from the eastern cities to a point on the Mississippi within about 180 miles of St. Louis, where the navigation is seldom interrupted by the severity of winter weather. The length of the route is a fraction less than 196 miles.

PARTICULAR DESCRIPTION OF THE ROUTE.

For the sake of convenient reference, the route will be considered in several divisions.

First division, extending from Dubuque to the White Water creek, a distance of 16 miles and 4,320 feet, commencing at the foot of Clay street, in Dubuque, the route extends westwardly along said street about 3,300 feet; then running to the left, enters Brickyard Hollow, and following the course of this ravine, attains the summit of the ridge between the city and Catfish creek, at a depression indicated by the heads of this and another ravine leading to the creek, at a distance of about $2\frac{3}{4}$ miles. To surmount this ridge, a grade of sixty feet per mile, on a portion of the route, and also, a short but deep cut at the summit will be necessary. Descending from the summit, a short distance by an easier grade, the route strikes an elevated table land through which are channelled out the

deep but narrow valleys of three branches of the Catfish creek—all encountered within a space of about 2 miles; these, together with the numerous laternal ravines, present a broken surface, but with care in adjusting the *line* of *location*, and by crossing these at a considerable elevation, the cuttings and fillings though numerous, will be short. For crossing these branches, one bridge of 25 feet, and two of 40 each, will be necessary; stone for the abutments will be found near the crossings. Crossing the last branch at a distance of about 4 miles from the commencement, the route is then along the general course of this valley, gradually gaining by its slope sufficient elevation to command the dividing ridge between the Catfish and White Water creeks, passing over more favorable ground with moderate grades and no abrupt curvature.

After crossing the ridge, at a distance of about 12 miles, the general course, without serious obstacle, is along the White Water slopes until striking the stream, at a distance of 16 miles and 4,200 feet, where a bridge of 30 feet, at only a slight elevation, will be required.

The most difficult part of the line embraced in this division, and the most expensive of any equal portion of the entire route, will be in the first 7 or 8 miles.

The topography of the country indicates another route for this division of the road, which, on account of the very limited time allowed for my operations, I was unable to examine particularly, but which should not be overlooked in making the surveys preliminary to a definite location of the line. This route leads from Dubuque along the River Bluffs by side cuttings to the mouth of Catfish, and then following the general course of this valley to its source, crosses the dividing ridge and striking the White Water at the termination of the other route.

Second division, extending from the White Water to the south fork of the Macoqueta a distance of 17 miles and 2,965 feet.

From the White Water the route continues on favorable ground, requiring but moderate grades and gentle curves, without any heavy work, crossing Curran's branch and John's fork, where bridges of 25 feet each will be required; then ascending, crosses the dividing ridge between White Water and Macoqueta, at the heads of two opposite ravines, where a slight cut will be necessary, it continues on with an easy grade to north fork of the Macoqueta, and crosses at Cascade, requiring a bridge of 100 feet at a small elevation. The distance from the White Water to the Macoqueta is about 7½ miles.

After crossing the river, the line curves to the left in order to pass by a lone summit into the valley of Farm creek, then passing up this valley it gains the elevation of the dividing ridge between the two forks of the Macoqueta, traversing in its course Bowen's prairie, on very favorable ground; and crossing this ridge, with a slight cutting, it descends the course of a long ravine without heavy grade or sharp curve, to the south fork of the Macoqueta, where a bridge of 100 feet will be required. This division extends almost entirely over prairie. The grades can be kept within 30 feet per mile without unnecessary expense.

Third division, extending from the south fork of the Macoqueta to a point near the summit between Wapsipinicon river, and the Cedar river, a distance of 17 miles and 5,581 feet. From the Macoqueta the line continues on very favorable ground, crossing successfully Story's and Kidney's creeks, with bridges of 25 feet each; then running along the general

course of the last named creek, it crosses the dividing ridge between the Macoqueta and Wapsipinicon rivers, by the heads of two opposite ravines with a moderate grade, but a sharp cut at a distance of about 8 miles, descending with about the same grade over fair ground, the route strikes Walworth's creek, and continues down its valley to the valley of the Buffalo fork, passing about a mile of rough ground, and crossing the creek twice with quite small bridges, continuing on the left bank of the Buffalo and passing through Anamosa, (county seat of Jones county,) it crosses the Wapsipinicon immediately below the mouth of the Buffalo fork, at a distance of 13 miles from the commencement. A bridge of 290 feet will be required here at a considerable elevation. A short but high embankment will be necessary, extending from the river to the Bluffs on the south side. Materials for the bridge can be found almost at hand. The line after striking the Bluff, follows for a short distance the course of the river, then ascending the course of a long ravine, it passes, after encountering some rough ground, by the head of Boston creek, to the summit between Wapsipinicon and Cedar rivers, and terminates this division on very favorable ground. In ascending from the Wapsipinicon a grade of 50 feet per mile will probable be necessary on a portion of the route. An easier grade could possibly be admitted by substituting a different route from the summit north of the Wapsipinicon by passing into the head of Fawn creek, and descending by its valley, crossing the Wapsipinicon, so as to strike the valley of Reed's creek, and following its course on the south until attaining the necessary elevation to surmount the ridge. The distance would be, however, greatly increased, and the ground still be broken. This route would leave Anamosa half a mile to the west of the line, and under my instructions I did not consider myself at liberty to consider any route which should not make that place a point.

Fourth division, extending from the termination of 3d division to Cedar river, a distance of 18 miles and 1,520 feet.

This division embraces a very favorable portion of the route, extending over level or gently rolling prairie through nearly the whole distance. Three small branches of Big creek and Squaw creek are crossed, requiring small bridges within twelve miles of the commencement, after which Indian creek, the largest on this division, is encountered, passing this with a bridge of 30 feet, requiring no heavy work, high grades or sharp curves, the route continues on in a southwesterly direction until the ravines and bluffs of the creek are passed; the route then turns to the south, and passing over quite favorable ground strikes the Cedar river at the rapids, where a bridge of 530 feet will be required. The facilities for crossing here are not surpassed at any other point on the whole route or on this river.

Fifth division, extending from the Cedar to the Iowa river, a distance of 18 miles and 462 feet.

From the Cedar the route takes a southwestern direction across a wide bottom, and ascending the Bluff by a ravine, crosses a low summit without difficulty, and strikes Prairie creek at a distance of about 2½ miles, when a bridge of 30 feet will be necessary; continuing on about the same course, it gradually ascends the dividing ridge between the two rivers, and passes the summit at the distance of about 6 miles from the commencement. The ground up to this point being highly favorable, con

tinuing on in nearly the same direction over equally fair ground a further distance of 12 miles, crossing in this distance four small creeks, requiring an aggregate amount of bridging of 50 feet, when the route curves to the right, (having gained sufficient space to avoid a great number of deep ravines leading to the Iowa river,) and passing over ground somewhat broken, crosses Rapid creek with a bridge of 20 feet, then ascending, passes the summit and strikes the head of Ralston's creek, at a distance of about 4 miles from the Iowa river; following the valley of this creek, the line continues on through Iowa city, and strikes the river about one mile below the town. A bridge of 300 feet will be necessary to cross this stream. The ground is very favorable on this division until arising within a few miles of Rapid creek, when it assumes comparatively a now unfavorable aspect, and continues so to the termination of the division. The grades can probably be kept below 35 feet per mile without incurring heavy work.

Sixth division, extending from the Iowa river to Mount Pleasant, a distance of 48½ miles. After crossing the Iowa river, the route continues on the river bottom 2 miles, then ascends by moderate grade the side of the bluff, crosses the summit and descends to the valley of Old Man's creek, crossing which with a bridge of 40 feet, and another low summit, it strikes the south branch of Old Man's creek—all within a distance of 6½ miles.

There will be no difficulty in keeping the grades on this part of the route below the maximum assumed on the first division. Up to this point there will be no heavy work, or sharp curvature on this division; and from this point the route assumes a very favorable character, crossing English river at a distance of about 10 miles, with a bridge of about 150 feet, and ascending without difficulty from its valley, the route is nearly direct to Washington, and for a considerable part of the distance over nearly level prairie, crossing Davis Creek, with a trifling bridge in this distance; and leaving the town of Washington, the route continues on equally favorable ground until reaching the west fork of Crooked creek, a distance of about 3½ miles, which is crossed with a bridge of 60 feet, and without any difficulty as to grade or curvature. At a further distance of about 2½ miles, the main branch of Crooked creek is encountered, requiring a bridge of 100 feet, and some extra work near the crossing; thence after ascending from this creek the route continues over very fair ground to Mount Pleasant. The only interruption to grades or abridgement worthy of notice occurs at Big creek, about 3¾ miles from the town, and here nothing of a serious nature—a bridge of 60 feet will be required here. This entire division may be considered favorable.

Seventh division, extending from Mount Pleasant to Keokuk, a distance of 48½ miles. On leaving Mount Pleasant the route inclines to the left, striking the Skunk river below the mouth of Big creek, the descent to the river being facilitated by the valley of this creek, a bridge of 300 feet will be necessary here. After ascending from the river the route continues over favorable ground, passing through or near West Point, and strikes the valley of Devil creek, near the Mississippi Bluffs, and descending by this valley to the bottom, takes nearly a direct course to Montrose, thence down the Mississippi 11¼ miles to Keokuk without difficulty.

The grades on this division can be kept below the maximum admitted on the northern end of the route, without requiring expensive work.

Another route, not differing materially in distance from the one here adopted, presents itself for consideration on this division, viz: from Mt. Pleasant, inclining to the right to meet a feasible descent to the valley of Big creek; crossing this stream and surmounting, by extended curvature, the dividing ridge between the creek and Skunk river; crossing the river and ascending from its valley by a long ravine to the general level of the highlands between this and the Des Moines river; thence on very fair ground through or near Salem, and crossing the heads of Sugar or Devil creek; then following the main trace of the dividing ridge between this creek and Half Breed creek, and finally passing down by the western slope of this ridge.

This route would undoubtedly accommodate a greater range of business in the interior, whilst on the other hand, the greater facility of approaching Keokuk on the first route, together with the consideration that the part of the line between Keokuk and Montrose (around the rapids) could soon be made available, even during the progress of the work on the remainder of the line, would perhaps entitle it to the preference. These are considerations, however, to apply in the definite location of the line, and it will be for the board of directors, after complete surveys, to decide between the different routes offering conflicting pretensions for the location.

In concluding this description of the route, it might perhaps suffice for all the purposes for which this report is required, to state the entire practicability of constructing a railroad of sufficient capacity for all the objects for which it is designed; but as a matter of interest, the cost of construction will be considered.

GRADING.

The estimates are based upon a graduated road bed of 16 feet in width for a single track of railway.

MECHANICAL STRUCTURES.

These are supposed to be constructed of the best materials, and on the most approved plan. The bridges of wooden frames, on stone abutments and piers; for large spans the frames to be of "Long's improved patent," and for moderate spans "Town's lattice." The culverts are calculated for stone, except in a few instances, where the hauling would be great and the embankment but light; in these cases wooden drains are contemplated, with a view of transporting stone upon the road to replace them when necessary.

THE TRACK.

The superstructure contemplated in the estimates is of the kind most generally used on railroads in this country, consisting of "longitudinal sills," "cross sils," and rails, all of timber; the rail surmounted with an iron plate.

The "*estimated cost*" of the road, completed ready for cars, is $2,071,788.

GENERAL REMARKS.

The total distance of the route as examined is 195 miles and 5,248 feet.

There is no doubt that the route can be essentially shortened by future examinations, and perhaps be improved in many places; all of which will tend to reduce the estimated cost.

Like all estimates made in this stage of the work, the one here presented must be regarded as only an approximation toward accuracy, though I have endeavored not to fall into the too common error of making it too low.

It should not be forgotten, that although the face of the country along the route is generally favorable for a railroad, the *direction* of this route is unfavorable, inasmuch as it crosses the principal drainings of the country.

Notwithstanding all this, it will be seen from the estimates that the work is not only practicable, but quite feasible.

All of which is respectfully submitted.

THOS J. McKEAN,
Engineer Dubuque and Keokuk Railroad.

Major H. LANGWORTHY,
President of the Board of Directors
for the Dubuque and Keokuk Railroad.

SECRETARY'S OFFICE, IOWA,
Iowa city, December 26, 1848.

I hereby certify that the foregoing is a correct copy of the original resolutions and report of the engineer of the Dubuque and Keokuk railroad now on file in said office.

JOSIAH H. BONNEY,
Secretary of State.